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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,157	02/25/2004	John G. Carman	15740.006	8150

7590 12/26/2007
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EXAMINER

ROBINSON, KEITH O NEAL

ART UNIT	PAPER NUMBER
1638	

MAIL DATE	DELIVERY MODE
12/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/785,157	Applicant(s) CARMAN, JOHN G.	
	Examiner Keith O. Robinson, Ph.D.	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-12, 15, 17-24 and 27-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-12, 15, 17-24 and 27-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action mailed January 4, 2007 and the following **third non-final** Office Action is set forth. Applicant's amendment to claims 1, cancellation of claims 5, 13, 14, 16, 25 and 26, and the addition of new claims 27-32, filed October 9, 2007, have been received and entered in full.

Claims 1-4, 6-12, 15, 17-24 and 27-32 are under examination.

Claim Rejections - 35 USC § 103

Claims 1-3, 12, 15 and 17 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Lutts et al (Euphytica 78: 19-25, 1994), in view of Ogburia et al (Euphytica 88: 9-16, 1996), and in further view of Bashaw et al (Apomictic grasses, *In* Principles of cultivar development, Vol. 2, pages 41-83, 1987). The rejection is repeated for the reasons of record as set forth on pages 3-5 of the Office Action mailed July 6, 2007. Applicant's arguments, filed October 9, 2007, have been fully considered but are not persuasive.

Applicant argues the rejection is moot due to the amendment of claim 1 to include the limitations of claim 5 (see page 8, 3rd paragraph of 'Remarks' filed October 9, 2007).

This is not persuasive. The amendment of claim 1 does not overcome the rejection because nucellus, integument, pericarp, hypanthium and pistil wall are present in all plants; thus, the plants taught in the cited references would possess these characteristics. Therefore, the rejection is maintained because Lutts et al teach a

method of producing an apomictic plant from sexual plants wherein a first plant and a second plant are hybridized, seed was recovered and sowed (to produce the F1 population and plants) and a hybrid plant is selected that is apomictic (see 'Materials and methods', page 20, 1st column, 1st paragraph to 2nd column, end of second full paragraph and Table 1) and Ogburia et al teach embryo sac formation and detection of angiospermous plants (see 'Experimental protocols', page 10, 1st column).

Claims 1, 2, 3, 12, 15 and 17 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Bashaw (Apomixis in crop improvement. *In* Hybridization of crop plants. 1980. pages 45-63), in view of Dujardin et al (Euphytica 38: 229-235, 1988). The rejection is repeated for the reasons of record as set forth on pages 5-6 of the Office Action mailed July 6, 2007. Applicant's arguments, filed October 9, 2007, have been fully considered but are not persuasive.

Applicant argues the rejection is moot due to the amendment of claim 1 to include the limitations of claim 5 (see page 9, 1st paragraph of 'Remarks' filed October 9, 2007).

This is not persuasive. The amendment of claim 1 does not overcome the rejection because nucellus, integument, pericarp, hypanthium and pistil wall are present in all plants; thus, the plants in the plants taught in the cited references would possess these characteristics. Therefore, the rejection is maintained because Bashaw teaches a method of producing angiospermous apomictic plants comprising selecting sexual angiospermous plants, namely buffelgrass, hybridizing said plants, recovering hybrid seed, and selecting a hybrid plant that is apomictic to the apomictic parent plant (see

page 59, Figure 3) and Dujardin et al teach the chromosome doubling of apomictic plants (see page 234, Figure 3).

Claims 1-4, 6-12, 15, 17-24 and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lutts et al (Euphytica 78: 19-25, 1994), in view of Ogburia et al (Euphytica 88: 9-16, 1996), further in view of each of Koul et al (Euphytica 28: 457-464, 1979), Hussey et al (Euphytica 54: 141-145, 1991), Hanna et al (Crop Sci. 27: 1136-1139, 1987) and Kroon et al (Euphytica 23: 345-352, 1974).

Lutts et al teach a method of producing an apomictic plant from sexual plants wherein a first plant and a second plant are hybridized, seed was recovered and sowed (to produce the F1 population and plants) and a hybrid plant is selected that is apomictic (see 'Materials and methods', page 20, 1st column, 1st paragraph to 2nd column, end of second full paragraph and Table 1).

Lutts et al do not teach identifying and selecting sexual plants from an angiospermous plant species, genus or family wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of the nongametophytic ovule and ovary tissues; somatic cell hybridization; various photoperiods; plants obtained by plant breeding; and euploid or aneuploid plants.

Ogburia et al teach embryo sac formation and detection of angiospermous plants (see 'Experimental protocols', page 10, 1st column).

Koul et al teach somatic cell hybridization (see page 463, 4th paragraph where it is taught that somatic cell hybridization can provide a way to accomplish genetic

improvement in plants that have little hope of this accomplishment through hybridization). One of ordinary skill in the art would be motivated to use somatic cell hybridization because of the teachings of Koul et al that it is a way for genetic improvement.

Hussey et al teach that the frequency at which sexual embryo sacs occur in some facultatively apomictic species is influenced by photoperiod (see page 141, line 1 of 'Summary'). It would be obvious to one of ordinary skill in the art to use plants with different photoperiods because the initiation time of embryo sac formation in plants differ. One of ordinary skill in the art would be motivated to use plants with different photoperiods Hussey et al teach, "[p]hotoperiod is one environmental factor that has been shown to be correlated with the frequency of sexual embryo sac" (see page 142).

Hanna et al teach obtaining plants by plant breeding (see, for example, page 1139, 1st column, 1st paragraph where it teaches, "apomixis...can be introduced into a cross through the male parent or through a female parent...[t]he resultant progeny will consist of both sexual and apomictic plants"). It would be obvious to one of ordinary skill in the art to use plants obtained by plant breeding because these are usually varieties having known and distinct genetic and physiological characteristics. One of skill in the art would be motivated to use plants obtained by plant breeding because Hanna et al teach that apomixis is probably more common in the cultivated species (i.e. species obtained by plant breeding) than has been reported (see page 1138, 1st column, last three lines).

Kroon et al teach apomictic hybridized plants that are euploid or aneuploid (see, for example, page 349, Figure 2 where it depicts both a euploid and an aneuploid produced from a cross between two sexual plants). It would be obvious to one of ordinary skill in the art to select euploids or aneuploids because Kroon et al teach aneuploids occur in interspecific and intraspecific crosses (see page 351, 1st paragraph). In addition, these plants are distinguishable from each other as depicted on page 349, Figure 2, so it would be easy to make selections for such plants.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of Applicant's invention to combine the above teachings with those of Lutts et al to produce the claimed invention.

One of ordinary skill in the art would have been motivated to combine these teachings for the reasons discussed above.

In addition, one of ordinary skill in the art would have reasonable expectation of success based on the success of Lutts et al in teaching a method of producing an apomictic plant from sexual plants wherein a first plant and a second plant are hybridized, seed was recovered and sowed and the above teachings of Ogburia et al, Koul et al, Hussey et al, Hanna et al and Kroon et al.

Conclusion

No claims are allowed.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith O. Robinson, Ph.D. whose telephone number is

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(571) 272-2918. The examiner can normally be reached Monday – Friday, 7:30 a.m. - 4:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached at (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keith O. Robinson, Ph.D.

December 17, 2007

DAVID H. KRUSE, PH.D.
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "David H. Kruse", written in a cursive style.